

## **EXAMINATION AND IMAGING OF BRAIN COGNITIVE FUNCTIONS**

### **ABSTRACT**

5           A system and method for examining or imaging brain functions of a subject  
includes a light source and a light detector located on the exterior surface of the subject's  
head. The light source introduces transcranially optical radiation into the brain of a  
subject, and the light detector detects radiation that has migrated in a brain region from  
the light source to the detector. The system also provides brain stimulation and evaluates  
10 the detected radiation to determine a brain cognitive function of the subject. One  
embodiment of the system can detect a brain disorder. Another embodiment of the  
system can detect "deceit." In addition to the optical module, the system may include  
other optional modules such as an EEG module, an MEG module, a thermography  
module, a respiratory module, a skin conductivity module, and a blood pressure module.

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